



SANHO CHEMICAL CO., LTD.

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TOHMIDE 215-X

TOHMIDE 215-X is a typical polyaminoamide type epoxy curing agent. TOHMIDE 215-X has large molecular weight, it thus provide the cured products with an epoxy resin with high orders of flexibility and adhesive.

1. SPECIFICATION

Appearance	: Brown-colored viscous liquid
Viscosity(25°C)	: 50,000 ~ 70,000 mPa · s
Color (Gardner)	: 10 Max.
Amine Value(JIS)	: 245±10
Specific Gravity	: 0.97 (25 / 25°C)
A.H.E.W.	: 175

2. RECOMMENDED MIXING RATIO

- (1) 50~150 parts to 100 parts of bisphenol-a type epoxy resin whose epoxy equivalent weight is about 190
- (2) 30~50 parts to 100 parts of bisphenol-a type epoxy resin whose epoxy equivalent weight is about 490.

3. CURING CHARACTERISTICS

Epoxy resin : employed bisphenol-a type epoxy resin whose epoxy equivalent weight is 190.

Total mass : 200gr. 23°C

Mixing Ratio	50 / 50
Peak exothermic time, min.	210
Peak exothermic temperature(°C)	29

4. PHYSICAL PROPERTIES

Epoxy resin : employed bisphenol-A type epoxy resin whose epoxy equivalent weight is about 190.

Mixing Ratio : Epoxy resin / TOHMIDE 215-X = 50 / 50

Curing condition		80°C ×1 hour	80°C ×2 hours
Compressive strength	kgf/mm ²	5.9	5.9
Bending strength	kgf/mm ²	7.3	7.2
Flexural modulus	kgf/mm ²	2.9×10 ²	3.1×10 ²



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5. DRYING PROPERTIES OF CURED FILMS

Epoxy resin : employ bispheno1-A type epoxy resin whose epoxy equivalent weight is about 190.

Mixed resins of TOHMIDE 215-X and epoxy resin, based on following mixing ratio, were coated onto the mild steel plates with sand blast treatment.

A = Epoxy resin was dissolved with xylene. (Epoxy resin : Xylene = 70 : 30)

B = Solvents ; Xylene : Isobutanol = 80 : 20

Mixing Ratio	100 / 25 / 20	100 / 20 / 15
A / TOHMIDE 215-X / B		
DRYING PROPERTIES (by drying recorder, Dry film = 100 μ , 22 ~23 $^{\circ}$ C)		
Set to touch, h	1.7	1.2
Tack Free, h	10.2	10.9
Dry through, h	24	24
PHYSICAL PROPERTIES (Dry film = 100 μ two times coatings, 23 $^{\circ}$ C \times 7days)		
Cross cut	25 / 25	25 / 25
Bending test (2mm \varnothing)	OK	OK
Du Pont Impact resistance test(1/2" x 500gr. X 50cm)	OK	OK
Pencil Hardness	F	2B



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6. CHEMICAL PROPERTIES OF CURED FILMS

Epoxy resin : employ bispheno1-a type epoxy resin whose epoxy equivalent weight is about 190.

A= Epoxy resin was dissolved with xylene (Epoxy resin : Xylene = 70 : 30)

B= Solvents ; Xylene : Isobutanol = 80 : 20

Weight increase was measured after following chemical substances were permeated into cured products of TOHMIDE 215-X with epoxy resin.

MIXING RATIO :		100 / 25 / 20				100 / 20 / 15			
A / TOHMIDE 215-X / B									
Immersing days		7	14	30	60	7	14	30	60
5% Acetic acid solution		OK	6M	1L	---	OK	OK	2L	---
5% Sulfuric acid solution		OK	OK	OK	OK	OK	OK	OK	OK
5% Hydrochloric acid solution		OK	OK	OK	OK	OK	OK	OK	9S
10% Ammonia solution		OK	OK	OK	8VS	OK	OK	6VS	4S
10% Caustic soda solution		OK	OK	OK	OK	OK	OK	OK	OK
5% salt solution		OK	OK	OK	9VS	OK	OK	OK	OK
Tap water		OK	OK	OK	9VS	OK	OK	OK	9VS
Kerosene		OK	OK	OK	---	OK	OK	OK	---
Isopropanol		OK	OK	OK	---	OK	OK	OK	---
MIBK		OK	OK	OK	---	OK	OK	OK	---
Salt spray resistance after 70 hr	Cross cut	25/ 25				25 /25			
	Swelling width	1 mm				2 mm			
	Scribed	Unaffected				Unaffected			

Dry Film thickness : 100u (two times coatings)

Curing time : 7 days , at 23°C